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10/626,695	07/25/2003	Ronald Hubert Carlos Cornelissen	0142-0419P	2677

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EXAMINER

HU, HENRY S

ART UNIT	PAPER NUMBER
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1713

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/23/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/23/2007.

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Office Action Summary

Application No.

10/626,695

Applicant(s)

CORNELISSEN ET AL.

Examiner

Henry S. Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Election of February 9, 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 8-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 4 and 7 is/are objected to.
- 8) ☒ Claim(s) 1-11 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7-25-2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to Election filed on February 9, 2007. **Applicant's election of Group I, Claims 1-7 is traversed with remarks on page 2.** The traversal is on the ground(s) that it would not place an undue burden to search and examine the non-elected three groups including **Group II (Claims 8-9), Group III (Claim 10) and Group IV (Claim 11)** with the elected Group I since they are so closely related in the field of crosslinkable PFPE-containing organic compound. This is not found persuasive because each group is drawn to a technology apparently requiring search in different classification area.

2. In a very close examination, each group is distinct from other group. Although **Group I and Group II** is related to a product and its process of making, the condensation reaction of hydroxyl group with halogenated compound certainly can be easily replaced with many other different organic reactions as known in the art so as to obtain the same ether product.

Hydrosilylation disclosed in **Group III** is a specific reaction in the art and will certainly involve a mixture of catalyst and hydrosilane. Finally, as known in the art the crosslinked product from Group III certainly results different properties and performance from starting compounds from Group II or I. Group IV is a different subject matter; it is an apparatus for transferring a toner image from an image-forming medium to a receiving medium.

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The requirement is still deemed proper and is therefore made FINAL. **Claims 1-11 with two independent claims (Claim 1 and Claim 11) are now pending**, while nonelected **Groups II-IV (Claims 8-11) are all withdrawn from consideration.** An action follows.

Claim Objections

3. Claims 4 and 7 are objected to because of the following informalities:

(a) On **Claim 4** at line 3, the compound formula " $\text{HR}_1\text{C}=\text{CR}_2\text{R}_3$ " for the group of "A" is very improper. A change to " $-\text{R}_1\text{C}=\text{CR}_2\text{R}_3$ " or the like structure is necessary since group "A" is only a mono-valent group.

(b) On **Claim 4** at line 11 and **Claim 7** at line 2, group "Q" is a bivalent group and NOT a terminating group. According, bi-valent groups such as " $\text{CF}_2\text{-CH}_2\text{-O}$ ", " $\text{CF}_2\text{-CH}_2\text{-O-}$ " or the like are wrong and they need to be changed to " $-\text{CF}_2\text{-CH}_2\text{-O-}$ " or the like.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The limitation of parent **Claim 1** in present invention relates to **a cross-linkable compound** comprising **a perfluoropolyether (PFPE) moiety**, which is ultimately terminated by an oxygen atom and bonded through **a spacer attached to the said oxygen atom with an ethylenically unsaturated group**, wherein the **spacer extends over at least three atoms** between the oxygen atom and the ethylenically unsaturated group.

*See other limitations of dependent **Claims 2-7**.*

6. **Claims 1-3** are rejected under 35 U.S.C. **102(b)** as being anticipated by Tarumi et al. (US 5,837,774) or Chaouk et al. (US 6,160,030) or under 35 U.S.C. **102(e)** as being anticipated by Yamaguchi et al. (US 6,673,887 B2 with an effective US filing date of June 22, 2000).

Regarding the **cross-linkable monomeric compound** limitation of parent **Claim 1**, each of **three** references including **Tarumi, Chaouk and Yamaguchi** has **individually** disclosed the preparation of a curable fluoropolyether rubber composition comprising **a straight chain fluoropolyether compound having at least two alkenyl groups in the molecule and having a divalent perfluoropolyether structure in its backbone chain**. In a very close examination, a spacer group is always existed in between alkenyl group and the linear PFPE moiety; it is found that the spacer group may be different and may carry some heteroatom other than carbon. However, the size of spacer group has been extended at least a total of three atoms in most cases.

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For instance, such PTFE-containing curable compounds are existed on “774” at column 3, line 6-43; “030” at column 3, line 36-67; column 9, line 1 – column 10, line 15; and also “887” at column 2, line 57 – column 3, line 53. Therefore, each reference anticipates limitation of parent Claim 1.

7. Regarding **Claims 2 and 3**, some spacer has indeed extended over at least four atoms. For instance, see “774” at column 3, chemical structures # 2-8; see “030” at column 9, line 1 – column 10, line 15; and see “887” at column 3, line 20-53. It is noted that dependent Claim 3 does not requires all the involved atoms in the spacer are carbon atoms.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. **Claims 4-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarumi et al. (US 5,837,774), Yamaguchi et al. (US 6,673,887 B2) and Chaouk et al. (US 6,160,030) **in combination**.

The discussion of the disclosures of the prior art of Tarumi, Yamaguchi and Chaouk for Claims 1-3 of this office action is incorporated here by reference. Regarding the specified chemical formula **D-(C_nF_{2n}O)_m-Q-B-A** of dependent **Claims 4-7**, each of three references including Tarumi, Yamaguchi and Chaouk is silent about different thing. In one way, **each of Tarumi and Yamaguchi is silent about using a specific Q bivalent group such as “-CF₂-CH₂-O-” or “-CH₂-CH₂-O-”** to be used in between his PTFE moiety and “B” bivalent group. In a close examination, Chaouk’s PFPE moiety is different from that from Tarumi or Yamaguchi. Chaouk’s PFPE moiety may naturally carry the claimed end group of -OCH₂CF₂- (see abstract, line 11). In the other way, **Chaouk is silent about using a spacer comprising the unit of –phenylene-Si(CH₃)₂-**, which has been explicitly disclosed by Tarumi or Yamaguchi (see Tarumi at column 3, chemical structures # 5-8; see Yamaguchi at column 3, line 1-5 and chemical structures # 6-8).

10. Based on the rationale that the above-mentioned missing two components which the references can teach each other, the advantage is that more diversified and may be better curable products can be thereby obtained in either way. Therefore, one having ordinary skill in the art

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would have found it obvious to modify Tarumi and Yamaguchi' chemical structure so as to use Chaouk's PTFE moiety which is carrying $-\text{OCH}_2\text{CF}_2-$, and also to modify Chaouk's chemical structure so as to carry Tarumi and Yamaguchi's unit of $-\text{phenylene-Si}(\text{CH}_3)_2-$. By doing so, one would expect all the embodiments in the same genus (PTFE moiety) would succeed based on functional equivalence and interchangeability. Additionally, more diversified and may be better curable products can be thereby obtained.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a cross-linkable compound comprising a perfluoropolyether (PFPE) moiety, which is ultimately terminated by an oxygen atom and bonded through a spacer attached to the said oxygen atom with an ethylenically unsaturated group:

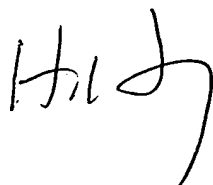
US 4,565,714 to Koshar only discloses the preparation of various curable compounds for making low surface energy materials. Such curable compounds comprising PTFE moiety, two alkenyl groups, and two spacer groups. Some of them may have the same structure, which is reading on the limitation of parent Claim 1. However, most of the spacer groups carry heteroatom and cannot read on dependent Claims 4-7.

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12. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu** whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

March 18, 2007



ADVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700